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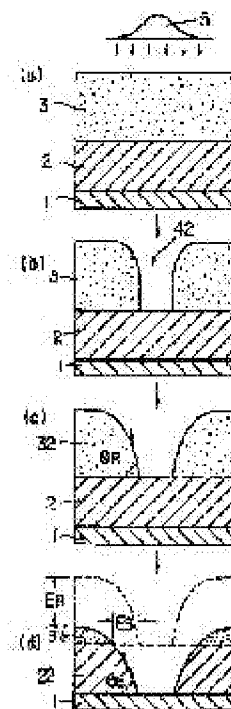
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(54) METHOD FOR FORMING CONTACT HOLE

(57)Abstract:

PURPOSE: To prevent that a resist film is reduced and that the controllability of the thermal deformation of a resist pattern becomes bad by a method wherein the title method is provided with the following: a press wherein an exposure operation is performed to the out-of-focus position and, in addition, an exposure operation and a developing operation are performed to the position of a focal point; and a process wherein UV rays are irradiated under a prescribed condition.

CONSTITUTION: A out-of-focus exposure operation which is provided with a light intensity distribution 5 is performed only to a part in which a contact hole is former in a substrate, to be treated, which has been coated with a photoresist film 3 on a wafer which has been covered with an interlayer insulating film 2 on a semiconductor substrate 1. After that, a contact-hole pattern is exposed and developed; a contact-hole resist pattern 42 can be obtained without reducing the resist film. Then, before the interlayer insulating film 2 is RIE-treated, a resist taper angle is controlled and the smoothing treatment of a sidewall is executed under a prescribed UV curing condition; the taper working operation of the interlayer insulating film 2 is executed surely and with good controllability. Thereby, the contact hole can be adjusted



with good accuracy, and a sidewall angle can be adjusted to an arbitrary angle within a range of about 50 to 85°.